

# Basics of MIDI

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## MIDI Terminology:

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- MIDI Musical Instrument Digital Interface. The MIDI standard was first established in 1982. It was developed to facilitate digital communication between electronic musical instruments. The basic idea was to send information about what note was being played and how it was played to another synthesis module regardless of manufacturer or model.
- A basic MIDI signal consists of...
  - the MIDI note number
  - the note-on velocity
  - the MIDI channel

There are other messages that are transmitted via MIDI, including various controllers, modulation wheel, after touch, pitch bend, master volume control, poly pressure, program change, pedal messages, tempo information, and so forth.

- MIDI note numbers range from 0 to 127 with middle C being 60, C# is 61 and so forth.
- Velocity refers to how fast the key was moving (down) when the note was played on a MIDI keyboard. This value also ranges from 0 to 127.
- There are 16 channels of MIDI available on one MIDI cable.
- A MIDI interface is a device designed to facilitate MIDI input and output between MIDI devices and computers.
- MIDI sequencing is a term describing the storing, editing, and playback of MIDI data. Most MIDI sequencers are software-based with graphic interfaces and run on personal computers.
- Program change or patch refers to a specific sound, either synthesized or played from memory, when a MIDI signal is received by a MIDI sound module. The term 'patches' is a vestige of analog synthesizers that used 'patch' chords to link various synthesis modules together or to input devices.
- Note on / Note off: When a MIDI device produces a MIDI note, the note number is sent out (note on), when that same note ends, the same note number is sent out with a velocity of zero (note off). The note off typically terminates synthesis or sample playback.

- Multi-timbral keyboards or sound modules are MIDI devices capable of producing two or more DIFFERENT sounds simultaneously. Note that different sounds must be triggered by MIDI messages received over different MIDI channels.
- Tracks differ from MIDI channels in that multiple tracks of MIDI data can transmit over the same MIDI channel, but each MIDI channel can trigger only ONE sound at time.
- General MIDI is a convention by which numeric patch numbers always correspond to specific types of sounds. For example, General MIDI patch 1 is always some type of piano sound. The exact timbre and quality of the sound depends on the synthesis module, however, if a synthesis module is in General MIDI mode, patch number 1 will ALWAYS be a piano sound. General MIDI was developed to alleviate a confusing situation that frequently arose when a MIDI sequence prepared using a specific synthesis module was relocated to a second setup that did not include the same synthesis module. This situation can create problems in that patch number 1 on one setup most likely would bear no resemblance to patch 1 on the second setup. Therefore, all patch numbers had to be remapped wasting valuable (and expensive) studio time. General MIDI was developed to standardize the patch numbers for 128 commonly used sounds.
- Local Control is used to make or break the link between a MIDI controller [usually a keyboard] and its own sound generators. If local control is turned on, then a sound is generated by outgoing MIDI messages before they are sent to the MIDI out port. If local control is OFF, then no sound is generated before the MIDI signal is sent the MIDI out port. Whether or not to switch local control on or off depends on your setup and situation.

## MIDI IS NOT AUDIO

An important distinction must be made between MIDI information and digital audio. MIDI information conveys ONLY information about what note was initiated, how it was played, and when the note ends. No actual audio is transmitted, only information about what note the synthesizer is to play, how to play it, and when to stop playing it. No audio is transmitted or stored when MIDI signals are passed from one device to another or when MIDI sequences are created.